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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/905,583	07/13/2001	Martin Eickhoff	10537/120	4271

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EXAMINER

FERGUSON, MARISSA L

ART UNIT	PAPER NUMBER
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2854

DATE MAILED: 08/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/905,583	Applicant(s) EICKHOFF ET AL.	
	Examiner Marissa L Ferguson	Art Unit 2854	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 29-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1, 2, 4, 6-22 and 29-49 is/are rejected.
- 7) ☒ Claim(s) 3 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1,2,4,6,8-22 and 28-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kleven et al (US Patent 4,926,695) in view of Dauenhauer et al. (US Patent 5,132,658).

Regarding claims 1 and 21, Kleven et al. teaches a vortex sensor responsive to a pressure (Column 11, Line 51 and see claim 17), with a housing (95) having an interior chamber (105), a steel diaphragm (118) sealing the interior chamber, a deformable first measuring element (115) coupled to the diaphragm (118) and an arrangement coupled to the first measuring element, the arrangement being configured to generate a signal in response to a deformation of a diaphragm and to generate a signal in response to a deformation of the first measuring element (Column 6, Lines 52-67). However, he does not explicitly disclose an arrangement wherein a deformation of a first measuring element is responsive to a deformation of a diaphragm.

Dauenhauer et al. teaches an arrangement wherein a deformation of a first measuring element (30,40,16) is responsive to a deformation of a diaphragm (see

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element 14, Column 3, Lines 13-27 and Figures 4a,b). The arrangement is used for determining a pressure difference.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the invention taught by Kleven to include the elements as taught by Dauenhauer et al., since Dauenhauer et al. teaches using the arrangement for accurately determining the pressure difference in the structure.

Regarding claim 2, Kleven et al. teaches a first measuring element that includes a bendable beam having one end suspended (see element 115 and Figure 8).

Regarding claim 4, Kleven et al. teaches a stop element including a flexible harder/stiffer second measuring element (101) that is arranged for different pressures.

Regarding claim 6, Kleven et al. teaches at least one measuring element and a stop element that includes at least one piezoelectric element (Column 6, Lines 37-42).

Regarding claims 8 and 9, Kleven et al. teaches a transmission element (51) including one of elasticity, stiffness, and ranges that transmits force from the diaphragm to measuring elements (Column 4, Lines 47-60).

Regarding claim 10, Kleven et al. teaches transmission elements (51 and 54) including a chip (wafer 70 and see figures 6 and 7).

Regarding claim 11, the measuring element is a bar (115).

Regarding claim 12, the chip is a single chip (70).

Regarding claims 13-17, 19 and 20, Kleven et al. teaches the invention claimed, however he does not explicitly disclose various pressure ranges. However, it would have been obvious at the time the invention was made to modify the device to measure

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any desirable pressure range, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Regarding claim 18, Kleven et al. teaches an overload stop protection element (Column 6, Lines 42-52).

Regarding claim 22, although Kleven et al. does not explicitly recite a aiming off allowance, it would have been obvious to modify the element for related allowance because the rocking sensing means (101) has a curved configuration (101A) and the pivoting characteristic (102) provides some manufacturing, tolerance, and allowance.

Regarding claims 28-49, Kleven et al's arrangement can be used for any intention including an internal combustion engine.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kleven et al. (U.S. Patent 4,926,695) in view of Dauenhauer et al. (US Patent 5,132,658) as applied to claim 1 above, further in view of Dufour (U.S. Patent 5,317,917).

Kleven et al. and Dauenhauer et al. both teach the invention with the exception of a piezoresistor connected to a Wheatstone bridge. However, piezoresistor Wheatstone bridge configurations are well known and commonly used in the art of pressure/flow sensors. For example, Dufour teaches a beam arrangement with a piezoresistor Wheatstone configuration (Column 5; Lines 24-27).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to further modify the invention taught by Kleven et al. to

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include the Wheatstone arrangement as taught by Dufour for general balancing and accurate measurement.

Allowable Subject Matter

3. Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

4. Applicant's arguments with respect to claims 1,2, 4-22 and 28-49 have been considered but are moot in view of the new ground(s) of rejection.

5. Applicant's arguments filed on May 16, 2003 have been fully considered but they are not persuasive. Specifically regarding claim 3, applicant argues that Dufour does not show a piezoresistor connected in a Wheatstone bridge. The examiner considers the piezoresistive strain gauges to be a piezoresistor. The gauges are in fact in connection in a Wheatstone bridge configuration (Column 5, Lines 24-27), therefore the argument is not persuasive.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marissa L Ferguson whose telephone number is (703) 305-3194. The examiner can normally be reached on (M-T) 6:30am-4:00pm and every other (F) 7:30am-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (703) 305-6619. The fax phone

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numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Marissa L Ferguson
Examiner
Art Unit 2854

MLF

July 25, 2003

Edward Leekowitz
EDWARD LEEKOWITZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800